# AMSER Case of the Month: July 2018

## 19yo F with RLQ abdominal pain

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# Patient Presentation

- 19yo F BIBEMS for evaluation of RLQ pain with nausea and vomiting
  - Cramping, constant, 10/10, non-radiating, abrupt onset this morning
- PMHx: Mild intermittent asthma
- GYNHx:
  - No prior Pap; No Hx of STIs; No prior pregnancies, miscarriages, or abortions
  - LMP 06/06/2018
  - Copper IUD placed 06/05/18
- Physical Exam
  - VS: 36.7° C HR 68 BP 124/64 RR 18 SpO2: 100%
  - Abdominal: RLQ TTP and + Rovsing's Sign
  - Pelvic: No blood in vaginal vault, IUD strings visible, no cervical motion or adnexal tenderness/ Bimanual: Palpable mass R adnexa

# Pertinent Labs

- WBC: 13.8, Hgb: 11.9
- BUN: 14, Cr: 0.59
- Lipase: 17
- B-HCG: negative
- Urinalysis: normal

## What Imaging Should We Order?

# ACR Appropriateness Criteria: RLQ Pain

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**ACR Appropriateness Criteria®**

**Clinical Condition:** Right Lower Quadrant Pain—Suspected Appendicitis

**Variant 1:** Fever, leukocytosis, and classic clinical presentation for appendicitis in adults.

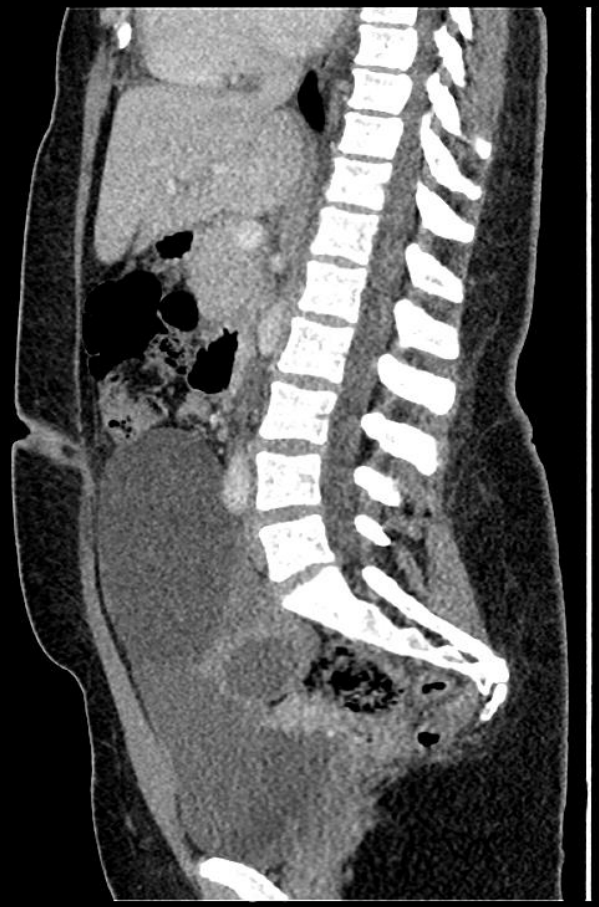
| Radiologic Procedure | Rating | Comments | RRL* |
|---|---|---|---|
| CT abdomen and pelvis with IV contrast | 8 | Oral or rectal contrast may not be needed depending on institutional preference. | ☢☢☢☢ |
| CT abdomen and pelvis without IV contrast | 7 | Use of oral or rectal contrast depends on institutional preference. | ☢☢☢☢ |
| US abdomen | 6 | Perform this procedure with graded compression. | O |
| US pelvis | 5 | This procedure is appropriate in women with pelvic pain. | O |
| MRI abdomen and pelvis without and with IV contrast | 5 | | O |
| X-ray abdomen | 4 | This procedure may be useful when there is concern for perforation and free air. | ☢☢ |
| CT abdomen and pelvis without and with IV contrast | 4 | Oral or rectal contrast may not be needed in this procedure depending on institutional preference. | ☢☢☢☢ |
| MRI abdomen and pelvis without IV contrast | 4 | | O |
| X-ray contrast enema | 2 | | ☢☢☢ |
| Tc-99m WBC scan abdomen and pelvis | 2 | | ☢☢☢☢ |

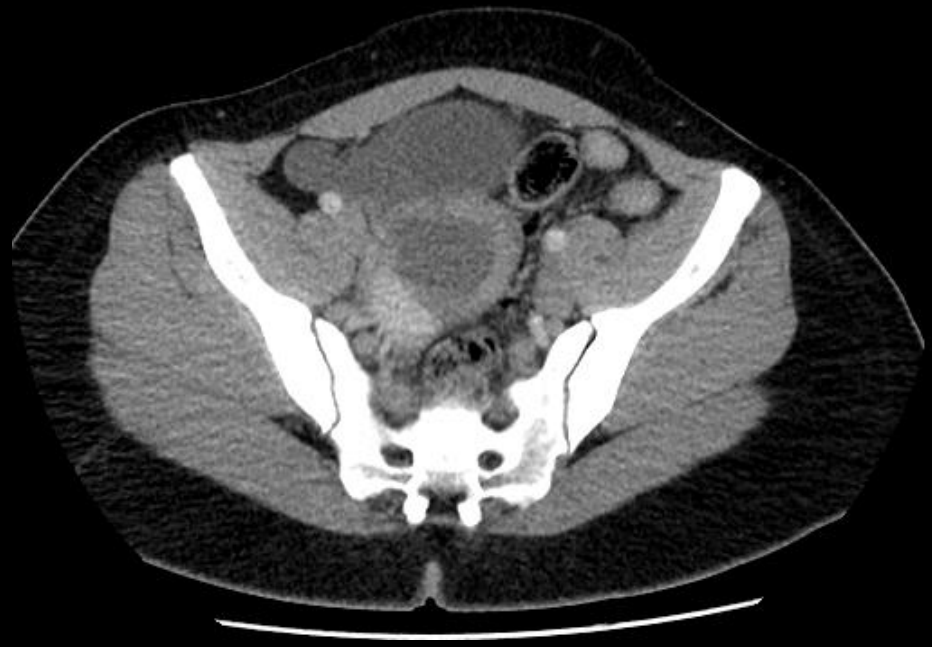
**Rating Scale:** 1,2,3 Usually not appropriate; 4,5,6 May be appropriate; 7,8,9 Usually appropriate

*Relative Radiation Level

This imaging modality was ordered by the ED physician

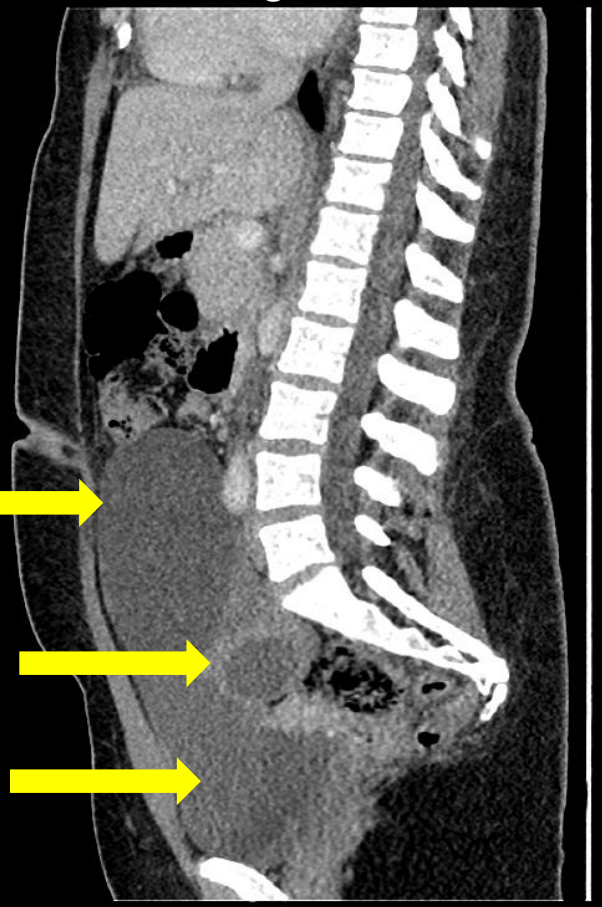
# Findings (unlabeled)



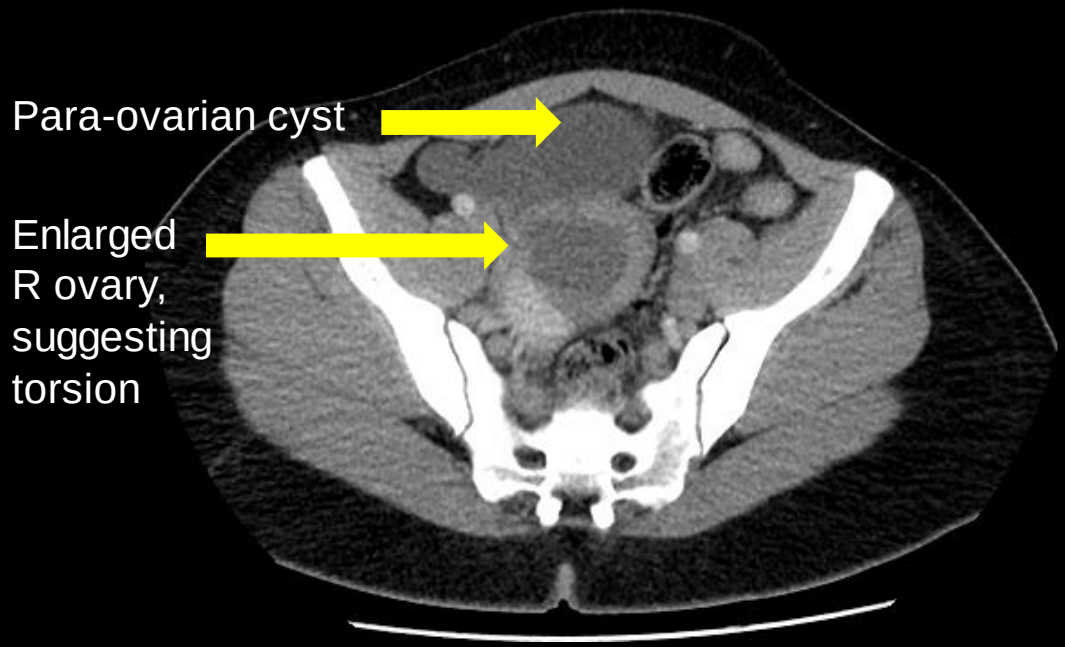


# Findings (labeled)

Sagittal




Axial




## What Additional Imaging Should We Order?

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# ACR Appropriateness Criteria: Adnexal Mass

**American College of Radiology**
**ACR Appropriateness Criteria®**

**Clinical Condition:** Clinically Suspected Adnexal Mass

**Variant 1:** Reproductive age female (not pregnant). Initial evaluation.

| Radiologic Procedure | Rating | Comments | RRL* |
|---|---|---|---|
| US pelvis transvaginal | 9 | All three tests (TVS, TAS, and Doppler) may be performed depending on the clinical circumstances. | O |
| US duplex Doppler pelvis | 9 | All three tests (TVS, TAS, and Doppler) may be performed depending on the clinical circumstances. Color or power US is recommended, less so spectral Doppler. | O |
| US pelvis transabdominal | 8 | All three tests (TVS, TAS, and Doppler) may be performed depending on the clinical circumstances. | O |
| MRI pelvis without and with IV contrast | 6 | | O |
| MRI pelvis without IV contrast | 5 | | O |
| CT pelvis without IV contrast | 2 | | ☢☢☢ |
| CT pelvis with IV contrast | 2 | | ☢☢☢ |
| CT pelvis without and with IV contrast | 2 | | ☢☢☢☢ |
| Image-guided aspiration or biopsy adnexal mass | 2 | | Varies |
| FDG-PET/CT whole body | 1 | | ☢☢☢☢ |
| **Rating Scale:** 1,2,3 Usually not appropriate; 4,5,6 May be appropriate; 7,8,9 Usually appropriate | | | *Relative Radiation Level |

These imaging modalities were ordered by the ED physician

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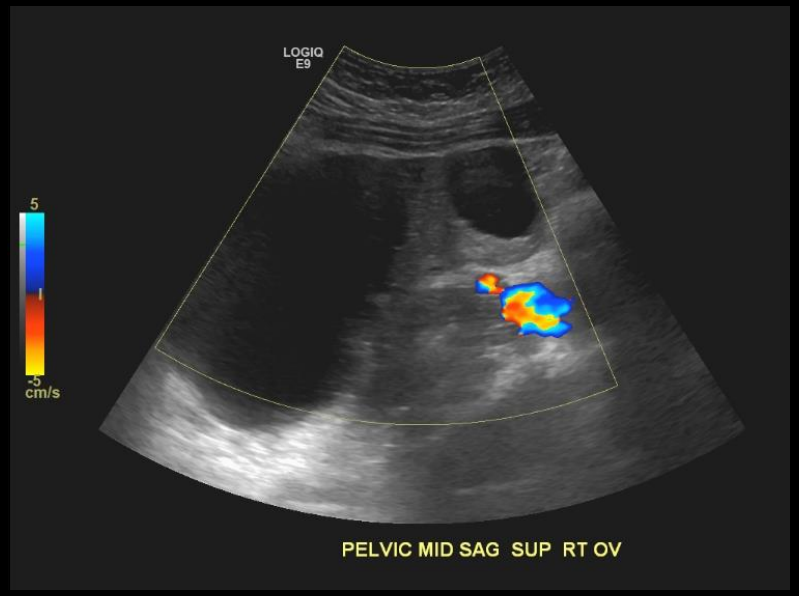
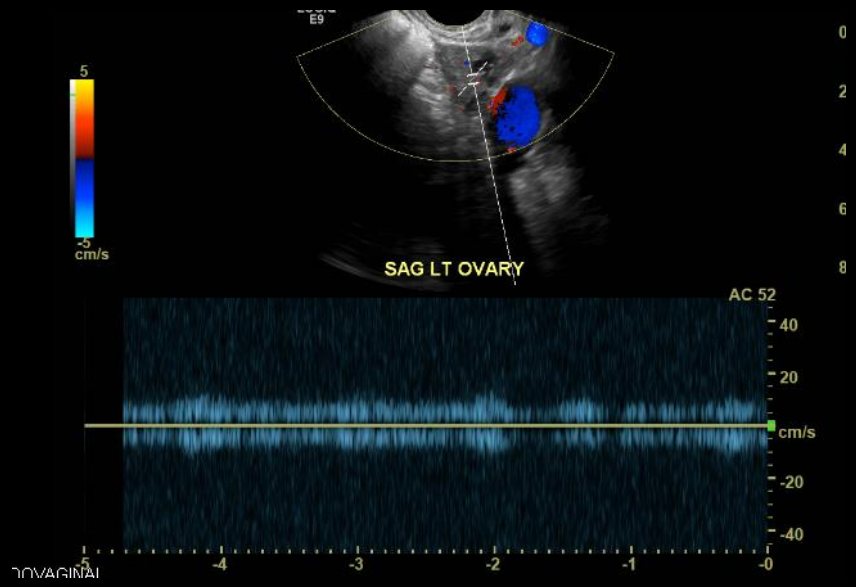
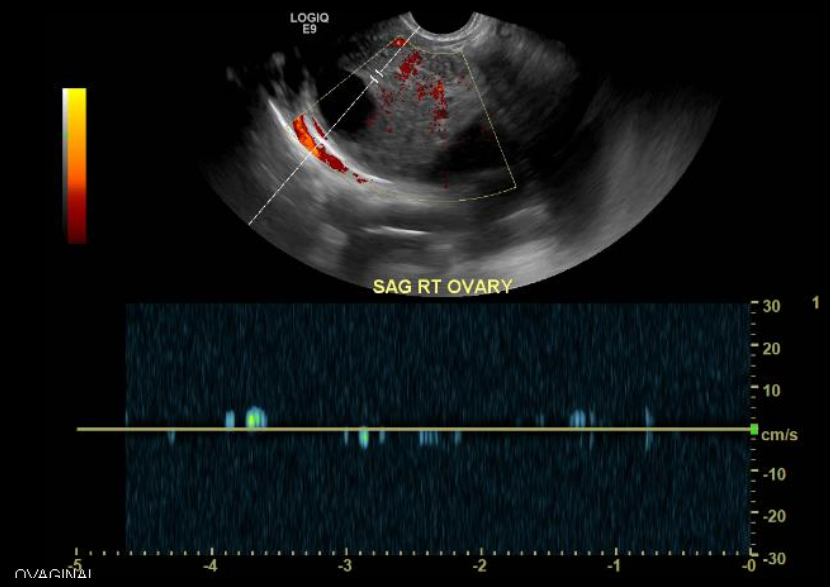
# Findings (unlabeled)

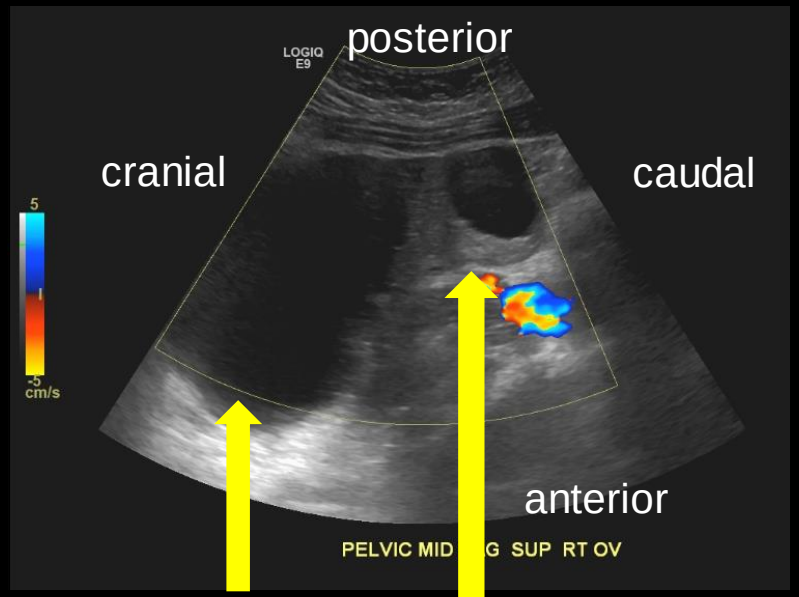


# Findings (labeled)

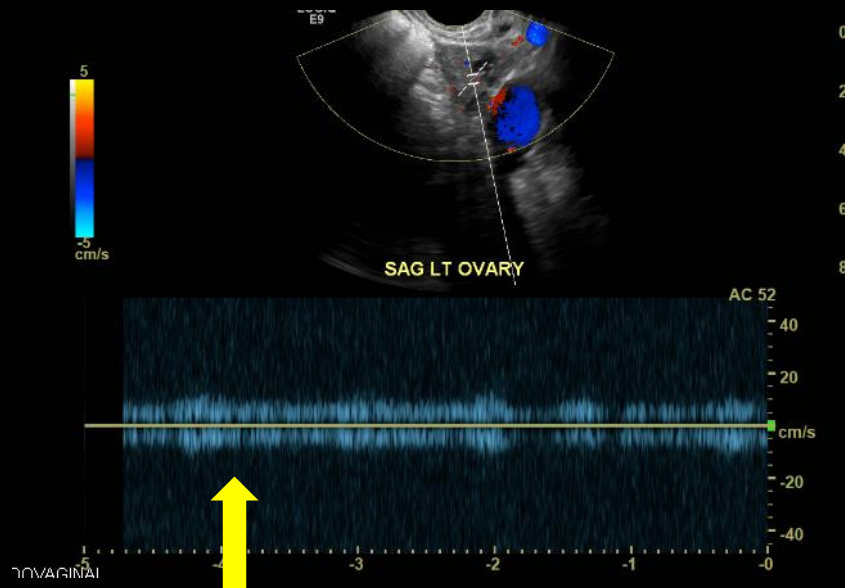
Transabdominal U/S




Para-ovarian cyst

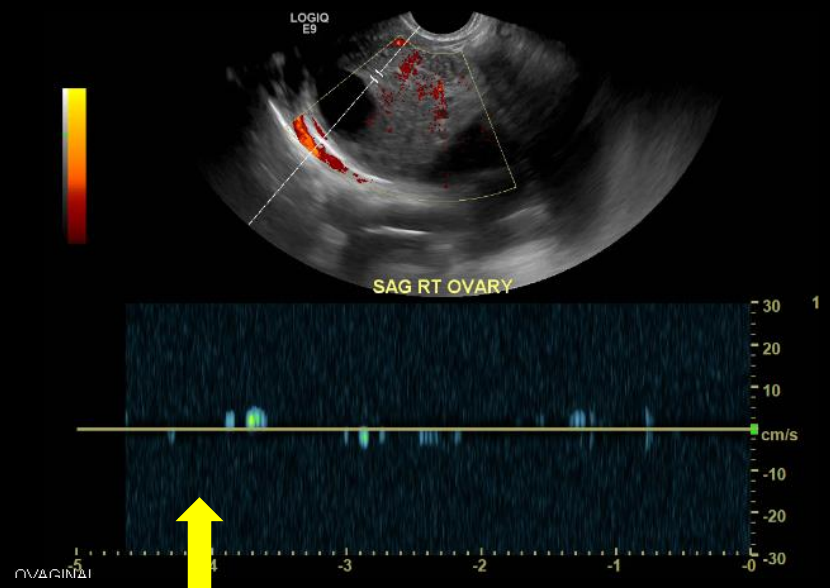
Enlarged R ovary

Transvaginal U/S (Left)




Intact waveform, indicating good blood flow to L ovary

Transvaginal U/S (Right)




**Absent waveform, indicating diminished blood flow to R ovary**

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# Final Dx:

Right Ovarian Torsion with necrosis

# Ovarian Torsion

- Definition: Rotation of the ovary around the infundibulopevlic and utero-ovarian ligaments → impendence of blood flow
- Risk Factors:
  - Ovarian mass: cyst or neoplasm
  - Reproductive age
- Typical Imaging Findings on U/S
  - Enlarged ovary compared to contralateral- edema and lymph engorgement
  - Ovarian Mass
  - Decreased or absent Doppler flow

- Differential Diagnosis:
  - R/o ectopic pregnancy, appendicitis, and tubo-ovarian abscess
- Surgical Evaluation
  - Confirm Torsion
  - Assess ovarian viability

Detorsion & ovarian conservation

Salpingo-oophrectomy

# References:


Varras M, Tsikini A, Polyzos D, et al. Uterine adnexal torsion: pathologic and gray-scale ultrasonographic findings. Clin Exp Obstet Gynecol 2004; 31:34.

Albayram F, Hamper UM. Ovarian and adnexal torsion: spectrum of sonographic findings with pathologic correlation. J Ultrasound Med 2001; 20:1083.

R. Bhosale, Mostafa Atri, Robert D. Harris, et al. Acute Pelvic Pain in the Reproductive Age Group. Available at: https://acsearch.acr.org/docs/69503/Narrative/. American College of Radiology. Accessed 6/27/18.

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